

Curriculum Vitae

Mahdi Nikdast

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1 Personal Information

1.1 Contact Information

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1.2 Education

<i>Degree</i>	<i>Date</i>	<i>University</i>
Ph.D.	Dec. 2013	Hong Kong University of Science and Technology (HKUST)
B.Sc.(Hons)	May 2009	Azad University, Iran

Doctoral Dissertation:

Signal-to-noise Ratio (SNR) in Optical Interconnection Networks: Analysis, Modeling, and Comparison
 Ph.D. Advisor: Prof. Jiang Xu

1.3 Awards and Honors

- [1] National Science Foundation (NSF) Faculty Early Career Development Program (**CAREER**) Award, 2021.
- [2] ACM Great Lakes Symposium on VLSI (GLSVLSI) **Best Honorable Mention Paper Award** for the paper “LORAX: Loss-Aware Approximations for Energy-Efficient Silicon Photonic Networks-on-Chip,” Beijing, China 2020.
- [3] Colorado State University Demo Day Forum **Best Poster People’s Choice Award** for the poster “Eye of Horus (EoH): An Automated Real-Time Surveillance System to Protect Citizens,” Fort Collins, CO, 2019.
- [4] ACM Great Lakes Symposium on VLSI (GLSVLSI) **Best Paper Award Candidate** for the paper “DeEPeR: Enhancing Performance and Reliability in Chip-Scale Optical Interconnection Networks,” Chicago, IL 2018.
- [5] IEEE Design Automation and Test in Europe (DATE) Conference and Exhibition - Test and Robustness Track **Best Paper Award** for the paper “Modeling Fabrication Non-Uniformity in Chip-Scale Silicon Photonic Interconnects,” Dresden, Germany, 2016.
- [6] IEEE/ACM Design Automation Conference (DAC) Travel Grant, Austin, TX 2016.
- [7] Natural Sciences and Engineering Research Council of Canada (NSERC) CREATE Postdoctoral Fellowship (SiEPIC Program), Montreal, Canada, 2015–2017.
- [8] IEEE/OSA Asia Communications and Photonics (ACP) Conference - The Optical Society **Best Paper Award** for the paper “Photonic Integrated Circuits under Process Variations,” Hong Kong, 2015.

- [9] IEEE Design Automation and Test in Europe (DATE) Conference and Exhibition - Ph.D. Forum Travel Grant, Grenoble, France, 2015.
- [10] Regroupement Strategique en MicroSystemes du Quebec (ReSMiQ) Postdoctoral Fellowship, Montreal, Canada, 2014–2016.
- [11] IEEE/ACM Design Automation Conference (DAC) - Ph.D. Forum Travel Grant, San Francisco, CA 2014.
- [12] HKUST School of Engineering Fellowship for Outstanding Graduate Students, Hong Kong, 2012–2013.
- [13] HKUST Postgraduate Scholarship, Hong Kong, 2009–2013.
- [14] AMD Technical Forum and Exhibition (AMD-TFE) **Best Project Award (2nd place)** for the project “A Formal Analysis of Crosstalk Noise in Mesh-Based Optical Networks-on-Chip for Chip Multi-processors,” Taipei, Taiwan, 2010.
- [15] AMD Travel Grant, Taiwan, 2010.
- [16] Azad University Scholarship for Outstanding Undergraduate Students, Iran, 2006–2009.

1.4 Professional Appointments

Jan. 2021–present

Graduate Faculty, Department of Electrical and Computer Engineering, Duke University, Durham, NC, USA

Sep. 2017–present

Assistant Professor, Department of Electrical and Computer Engineering, Colorado State University, Fort Collins, CO, USA

Sep. 2014–Aug. 2017

Postdoctoral Fellow, Electrical and Computer Engineering Department, McGill University, Montreal, QC, Canada

Sep. 2014–Aug. 2017

Postdoctoral Fellow, Computer and Software Engineering Department, Polytechnique Montreal, Montreal, QC, Canada

Feb. 2014–Aug. 2014

Visiting Scholar, Electronic and Computer Engineering Department, Hong Kong University of Science and Technology, Hong Kong

Sep. 2009–Jan. 2014

Graduate Research Assistant, Electronic and Computer Engineering Department, Hong Kong University of Science and Technology, Hong Kong

1.5 Professional Society Membership

2019–present

IEEE Senior Member

2014–2019

IEEE Member

2015–present

ACM Member

2010–2014

IEEE Graduate Student Member

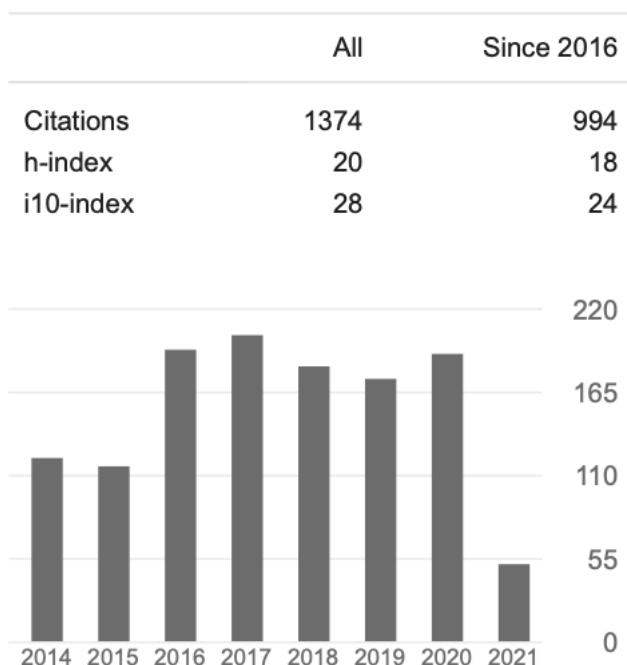
2 Research Activities

2.1 Research Interest Statement

My primary research goals are focused on design methodologies and development of high-performance computing and data-communication systems employing emerging technologies while emphasizing energy-efficiency and robustness. Some topics of interest are: High-Performance Computing and Supercomputing Systems, Silicon Photonics, Neural Networks, Heterogeneous Embedded and Computing Systems, Interconnection Networks, Optical Switching, System Modeling and Simulation, Electronic-Photonic Systems-on-Chip, Electronic-Photonic Design Automation (EDPA), and Design for Reliability and Energy Efficiency.

2.2 Publication Citations

(Google Scholar as of 1 April, 2021)



2.3 Research Grants and Contracts

- [RG1] National Science Foundation (NSF), Division of Computer and Network Systems (CNS), Networking Technology and Systems (NetS), **Principal Investigator:** *CAREER: Optimizing Scalability and Reconfigurability in Silicon Photonic Switch Fabrics*, May 2021 to April 2026, \$575,050. (NSF CNS-2046226)
- [RG2] National Science Foundation (NSF), Division of Computer and Network Systems (CNS), Computer Systems Research (CSR), **Principal Investigator:** *NSF Student Participation Grant for 2020 IEEE International Conference on Green and Sustainable Computing (IEEE IGSC)*, Oct. 2020 to Sep. 2021, \$10,000. (NSF CNS-2040186)
- [RG3] National Science Foundation (NSF), Division of Computing and Communication Foundations (CCF), Foundations of Emerging Technologies (FET), **Principal Investigator** (co-PIs: Edwin

Chong and Sudeep Pasricha): *Design Optimization of Silicon Photonic Integrated Circuits under Fabrication Process Variations*, June 2020 to May 2023, \$500,000. (NSF CCF-2006788)

- [RG4] National Science Foundation (NSF), Division of Computer and Network Systems (CNS), Computer Systems Research (CSR), **Principal Investigator**: *NSF Student Travel Grant for 2019 IEEE International Conference on Green and Sustainable Computing (IEEE IGSC)*, Oct. 2019 to Sep. 2020, \$20,000. (NSF CNS-1939004)
- [RG5] National Science Foundation (NSF), Division of Computing and Communication Foundations (CCF), Software and Hardware Foundations (SHF), **Co-Principal Investigator** (PI: Sudeep Pasricha): *Energy-Efficient and Reliable Communication with Silicon Photonics for Terascale Datacenters-on-Chip*, Oct. 2018 to Sep. 2021, \$450,000. (NSF CCF-1813370)
- [RG6] Engineering Student Technology Committee (ESTC), Colorado State University, **Principal Investigator**: *Automated Probe Station to Train Students for Testing Silicon Photonics Chips*, April 2018, \$10,000.
- [RG7] Colorado State University Faculty Startup, **Principal Investigator**: *High Performance Computing Systems Integrating Silicon Photonics*, Sep. 2017 to Sep. 2020, \$300,000.

2.4 Equipment Grants

- [EG1] NVIDIA GPU Grant Program, **Principal Investigator**: *High-End GPU for Eye of Horus (EoH): A Real-Time Automated Surveillance System to Protect Citizens*, Feb. 2019, \$3,000.

2.5 Other Grants and Contracts

- [1] Hewlett Packard Enterprise (HPE), Mentor Graphics (Siemens Business), and Lumerical Inc. (sponsorship), **Principal Investigator**: *Workshop on Silicon Photonics for High Performance Computing*, Feb. 2019 to May 2019, \$12,000.
- [2] Mentor Graphics (Siemens Business) and CSU Walter Scott Junior College of Engineering (sponsorship), **Principal Investigator**: *Workshop on Silicon Photonics for High Performance Computing*, April 2018 to May 2018, \$7,500.

2.6 Research and Development Tools

- [RD1] CLAP: Crosstalk and Loss Analysis Platform for Optical Interconnects. *Developed at the Hong Kong University of Science and Technology*. 2009–2014.
- [RD2] OTEMP: Optical Thermal Effect Modeling Platform for Optical Interconnects (Contributed). *Developed at the Hong Kong University of Science and Technology*. 2009–2014.
- [RD3] MCSL: A Realistic Networks-on-Chip Traffic Patterns (Contributed). *Developed at the Hong Kong University of Science and Technology*. 2009–2014.

2.7 Books

- [B1] **M. Nikdast**, G. Nicolescu, S. Pasricha, A. Seyedi, and D. Ling (Editors), *Silicon Photonics for High-Performance Computing and Beyond*. Taylor and Francis Catalogue (CRC Press), July 2021, ISBN 9780367262143 (to appear).

- [B2] **M. Nikdast**, G. Nicolescu, S. Le Beux, and J. Xu (Editors), *Photonic Interconnects for Computing Systems: Understanding and Pushing Design Challenges*. River Publishers, Wharton, TX, May 2017, ISBN 9788793519800, 412 pp.

2.8 Book Chapters

- [BC1] F. Sunny, A. Mirza, S. Pasricha, and **M. Nikdast**, “High Performance Deep Learning Acceleration with Silicon Photonics,” *Silicon Photonics for High-Performance Computing and Beyond*. Taylor and Francis Catalogue (CRC Press), July 2021, ISBN 9780367262143 (to appear).
- [BC2] F. Sunny, A. Mirza, I. Thakkar, S. Pasricha, and **M. Nikdast**, “Improving Energy Efficiency in Silicon Photonic Networks-on-Chip with Approximation Techniques,” *Silicon Photonics for High-Performance Computing and Beyond*. Taylor and Francis Catalogue (CRC Press), July 2021, ISBN 9780367262143 (to appear).
- [BC3] **M. Nikdast**, G. Nicolescu, J. Trajkovic, and O. Liboiron-Ladouceur, “Impact of Fabrication Non-uniformity on Silicon Photonics Networks-on-Chip,” *Photonic Interconnects for Computing Systems: Understanding and Pushing Design Challenges*. River Publishers, Wharton, TX, May 2017, ISBN 9788793519800, Chapter 12, pp. 355–385.
- [BC4] F. Gohring, **M. Nikdast**, F. Hessel, O. Liboiron-Ladouceur, and G. Nicolescu, “Optical Interconnection Networks: The Need for Low-Latency Controllers,” *Photonic Interconnects for Computing Systems: Understanding and Pushing Design Challenges*. River Publishers, Wharton, TX, May 2017, ISBN 9788793519800, Chapter 3, pp. 73–107.
- [BC5] **M. Nikdast**, G. Nicolescu, S. Le Beux, and J. Xu, “Editor’s Introduction: Photonics Interconnects for Computing Systems: Understanding and Pushing Design Challenges,” *Photonic Interconnects for Computing Systems: Understanding and Pushing Design Challenges*. River Publishers, Wharton, TX, May 2017, ISBN 9788793519800, pp. 1–8.

2.9 Journal Articles

(Total: 26)

- [J1] F. Sunny, E. Taheri, **M. Nikdast**, and S. Pasricha, “A Survey on Silicon Photonics for Deep Learning,” *ACM Journal of Emerging Topics in Computing (JETC)*, 2021.
- [J2] F. Sunny, A. Mirza, I. Thakkar, **M. Nikdast**, and S. Pasricha, “ARXON: A Framework for Approximate Communication over Photonic Networks-on-Chip,” *IEEE Transactions on Very Large Scale Integration Systems (TVLSI)*, 2021.
- [J3] S. Pasricha and **M. Nikdast**, “A Survey of Silicon Photonics for Energy Efficient Manycore Computing,” *IEEE Design and Test of Computers*, vol. 37, no. 4, pp. 60–81, 2020.
- [J4] M. Bahadori, **M. Nikdast**, Q. Cheng, and K. Bergman, “Universal Design of Waveguide Bends in Silicon-on-Insulator Photonics Platform,” *IEEE Journal of Lightwave Technology (JLT)*, vol. 37, no. 13, pp. 3044–3054, 2019.
- [J5] M. Bahadori, **M. Nikdast**, S. Rumley, L. Y. Dai, N. Janosik, T. V. Vaerenbergh, A. Gazman, Q. Cheng, R. Polster, and K. Bergman, “Design Space Exploration of Microring Resonators in Silicon Photonic Interconnects: Impact of the Ring Curvature,” *IEEE Journal of Lightwave Technology (JLT)*, vol. 36, no. 23, pp. 2767–2782, July 2018.

- [J6] R. Ayari, **M. Nikdast**, I. Hafnaoui, G. Beltrame, and G. Nicolescu, “HypAp: A Hypervolume-Based Approach for Refining the Design of Embedded Systems,” *IEEE Embedded Systems Letters (ESL)*, vol. 9, no. 3, pp. 57–60, September 2017.
- [J7] **M. Nikdast**, G. Nicolescu, J. Trajkovic, and O. Liboiron-Ladouceur, “Chip-Scale Silicon Photonic Interconnects: A Formal Study on Fabrication Non-Uniformity,” *IEEE Journal of Lightwave Technology (JLT)*, vol. 32, no. 16, pp. 3682–3695, August 2016.
- [J8] L. H. K. Duong, Z. Wang, **M. Nikdast**, J. Xu, P. Yang, Zh. Wang, R. Maeda, H. Li, X. Wang, S. Le Beux, and Y. Thonnart, “Coherent and Incoherent Crosstalk Noise Analyses in Inter/Intra-chip Optical Interconnection Networks,” *IEEE Transactions on Very Large Scale Integration Systems (TVLSI)*, vol. 24, no. 7, pp. 2475–2487, July 2016.
- [J9] F. Gohring, R. Priti, **M. Nikdast**, F. Hessel, O. Liboiron-Ladouceur, and G. Nicolescu, “Design and Modelling of a Low-Latency Centralized Controller for Optical Integrated Networks,” *IEEE Communications Letters (CL)*, vol. 20, no. 3, pp. 462–465, March 2016.
- [J10] **M. Nikdast**, J. Xu, X. Wu, X. Wang, Z. Wang, Zh. Wang, and P. Yang, “Crosstalk Noise in WDM-based Optical Networks-on-Chip: A Formal Study and Comparison,” *IEEE Transactions on Very Large Scale Integration Systems (TVLSI)*, vol. 23, no. 11, pp. 2552–2565, November 2015.
- [J11] X. Wu, J. Xu, Y. Ye, X. Wang, **M. Nikdast**, Z. Wang, and Zh. Wang, “An Inter/Intra-chip Optical Network for Manycore Processors,” *IEEE Transactions on Very Large Scale Integration Systems (TVLSI)*, vol. 23, no. 4, pp. 678–691, April 2015.
- [J12] X. Wang, J. Xu, W. Zhang, X. Wu, Y. Ye, Z. Wang, **M. Nikdast**, and Zh. Wang, “Actively Alleviate Power-Gating-Induced Power/Ground Noise Using Parasitic Capacitance of On-Chip Memories in MPSoCs,” *IEEE Transactions on Very Large Scale Integration Systems (TVLSI)*, vol. 23, no. 2, pp. 266–279, February 2015.
- [J13] **M. Nikdast**, J. Xu, L. H. K. Duong, X. Wu, Z. Wang, X. Wang, and Zh. Wang, “Fat-Tree-Based Optical Interconnection Networks Under Crosstalk Noise Constraint,” *IEEE Transactions on Very Large Scale Integration Systems (TVLSI)*, vol. 23, no. 1, pp. 156–169, January 2015.
- [J14] Y. Ye, Z. Wang, J. Xu, X. Wu, X. Wang, **M. Nikdast**, Zh. Wang, and L. H. K. Duong, “System-Level Modeling and Analysis of Thermal Effects in WDM-Based Optical Networks-on-Chip,” *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, vol. 33, no. 11, pp. 1718–1731, November 2014.
- [J15] L. H. K. Duong, **M. Nikdast**, S. Le Beux, J. Xu, X. Wu, Z. Wang, P. Yang, “A Case Study of Signal-to-Noise Ratio in Ring-Based Optical Networks-on-Chip,” *IEEE Design and Test of Computers (DT)*, vol. 31, no. 5, pp. 55–65, October 2014.
- [J16] X. Wu, J. Xu, Y. Ye, Z. Wang, **M. Nikdast**, and X. Wang, “SUOR: Sectioned Unidirectional Optical Ring for Chip Multiprocessor,” *ACM Journal on Emerging Technologies in Computing Systems (JETC)*, vol. 10, no. 4, pp. 29:1–29:25, May 2014.
- [J17] Z. Wang, J. Xu, X. Wu, Y. Ye, W. Zhang, **M. Nikdast**, X. Wang, and Zh. Wang, “Floorplan Optimization of Fat-Tree Based Networks-on-Chip for Chip Multiprocessors,” *IEEE Transactions on Computers (TC)*, vol. 63, no. 6, pp. 1446–1459, June 2014.

- [J18] X. Wu, Y. Ye, J. Xu, W. Zhang, W. Liu, **M. Nikdast**, and X. Wang, “UNION: A Unified Inter/Intra-Chip Optical Network for Chip Multiprocessors,” *IEEE Transactions on Very Large Scale Integration Systems (TVLSI)*, vol. 22, no. 5, pp. 1082–1095, May 2014.
- [J19] **M. Nikdast**, J. Xu, X. Wu, W. Zhang, Y. Ye, X. Wang, Z. Wang, and Zh. Wang, “Systematic Analysis of Crosstalk Noise in Folded-Torus-Based Optical Networks-on-Chip,” *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, vol. 33, no. 3, pp. 437–450, March 2014.
- [J20] W. Liu, X. Wang, J. Xu, W. Zhang, Y. Ye, X. Wu, **M. Nikdast**, and Z. Wang, “On-Chip Sensor Networks for Soft-Error Tolerant Real-Time Multiprocessor Systems-on-Chip,” *ACM Journal of Emerging Technologies in Computing Systems (JETC)*, vol. 10, no. 2, pp. 15:1–15:20, March 2014.
- [J21] Y. Xie, **M. Nikdast**, J. Xu, X. Wu, W. Zhang, Y. Ye, X. Wang, Z. Wang, and W. Liu, “A Formal Worst-Case Analysis of Crosstalk Noise in Mesh-Based Optical Networks-on-Chip,” *IEEE Transactions on Very Large Scale Integration Systems (TVLSI)*, vol. 21, no. 10, pp. 1823–1836, October 2013.
- [J22] Y. Ye, J. Xu, B. Huang, X. Wu, W. Zhang, X. Wang, **M. Nikdast**, Z. Wang, W. Liu, and Zh. Wang, “3D Mesh-based Optical Network-on-Chip for Multiprocessor System-on-Chip,” *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, vol. 32, no. 4, pp. 584–596, April 2013.
- [J23] Y. Ye, J. Xu, X. Wu, W. Zhang, X. Wang, **M. Nikdast**, Z. Wang, and W. Liu, “System-Level Modeling and Analysis of Thermal Effects in Optical Networks-on-Chip,” *IEEE Transactions on Very Large Scale Integration Systems (TVLSI)*, vol. 21, no. 2, pp. 292–305, February 2013.
- [J24] Y. Ye, J. Xu, X. Wu, W. Zhang, W. Liu, and **M. Nikdast**, “A Torus-based Hierarchical Optical-Electronic Network-on-Chip for Multiprocessor System-on-Chip,” *ACM Journal on Emerging Technologies in Computing Systems (JETC)*, vol. 8, no. 1, pp. 5:1–5:26, February 2012.
- [J25] S. Nasrolahi, **M. Nikdast**, and M. Mahdavi, “The Semantic Web: A New Approach for Future World Wide Web,” *International Journal of Computer, Electrical, Automation, Control and Information Engineering*, vol. 3, no. 10, pp. 2474–2479, October 2009.
- [J26] A. M. Shafiee, M. Montazeri, and **M. Nikdast**, “An Innovational Intermittent Routing Algorithm in Network-on-Chip,” *International Journal of Computer and Information Engineering*, vol. 2, no. 9, pp. 2907–2909, September 2008.

2.10 Conference Proceedings and Presentations

(Total: 36)

- [C1] S. Banerjee, **M. Nikdast**, and K. Chakrabarty, “Optimizing Coherent Integrated Photonic Neural Networks under Random Uncertainties,” *to appear in Proc. IEEE/OSA Optical Fiber Communication (OFC) Conference*, San Francisco, CA, June 2021.
- [C2] E. Taheri, R. Kim, and **M. Nikdast**, “AdEle: An Adaptive Congestion-and-Energy-Aware Elevator Selection for Partially Connected 3D NoCs,” *to appear in Proc. IEEE/ACM Design Automation Conference (DAC)*, San Francisco, CA, December 2021.

- [C3] F. Sunny, A. Mirza, **M. Nikdast**, and S. Pasricha, “CrossLight: A Cross-Layer Optimized Silicon Photonic Neural Network Accelerator,” *to appear in Proc. IEEE/ACM Design Automation Conference (DAC)*, San Francisco, CA, December 2021.
- [C4] S. Banerjee, **M. Nikdast**, and K. Chakrabarty, “Modeling Silicon-Photonic Neural Networks under Uncertainties,” *to appear in Proc. IEEE/ACM Design, Automation and Test in Europe (DATE) Conference and Exhibition*, Grenoble, France, March 2021.
- [C5] A. Mirza, S. Pasricha, and **M. Nikdast**, “Variation-Aware Inter-Device Matching in Silicon Photonic Microring Resonator Demultiplexers,” *in Proc. IEEE Photonics Conference (IPC)*, Vancouver, BC, Canada, 2020, pp. 1–2.
- [C6] F. Sunny, A. Mirza, I. Thakkar, S. Pasricha, and **M. Nikdast**, “LORAX: Loss-Aware Approximations for Energy-Efficient Silicon Photonic Networks-on-Chip,” *in Proc. ACM Great Lakes Symposium on VLSI (GLSVLSI)*, Beijing, China, September 2020, pp. 235–240. (**Best Honorable Mention Paper Award**)
- [C7] A. Mirza, F. Sunny, S. Pasricha, and **M. Nikdast**, “Silicon Photonic Microring Resonators: Design Optimization under Fabrication Non-uniformity,” *in Proc. IEEE/ACM Design, Automation and Test in Europe (DATE) Conference and Exhibition*, Grenoble, France, March 2020, pp. 484–489.
- [C8] A. Mirza, S. Manafi Avari, E. Taheri, S. Pasricha, and **M. Nikdast**, “Opportunities for Cross-Layer Design in High-Performance Computing Systems with Integrated Silicon Photonic Networks,” *in Proc. IEEE/ACM Design, Automation and Test in Europe (DATE) Conference and Exhibition*, Grenoble, France, March 2020, pp. 1622–1627.
- [C9] T. M. Tseng, A. Truppel, M. Li, **M. Nikdast**, and U. Schlichtmann, “Wavelength-Routed Optical NoCs: Design and EDA — State of the Art and Future Directions,” *Special Session on Breaking the Ice Between Silicon Photonics Design and EDA: Electronic-Photonic Design Automation*, *in Proc. IEEE/ACM International Conference On Computer Aided Design (ICCAD)*, Westminster, CO, November 2019, pp. 1–6.
- [C10] X. Cao, B. Bhatnagar, **M. Nikdast**, and S. Roy, “Hierarchical Polynomial Chaos for Variation Analysis of Silicon Photonics Microresonators,” *in Proc. IEEE Applied Computational Electromagnetics Society (ACES) Symposium*, Miami, FL, April 2019, pp. 1–2.
- [C11] **M. Nikdast**, G. Nicolescu, and O. Liboiron-Ladouceur, “Improving Microresonator Reliability in Silicon Photonic Integrated Circuits,” *in Proc. IEEE Optical Interconnect (OI) Conference*, Santa Fe, NM, May 2018, pp. 3–4.
- [C12] **M. Nikdast**, G. Nicolescu, J. Trajkovic, and O. Liboiron-Ladouceur, “DeEPeR: Enhancing Performance and Reliability in Optical Interconnection Networks,” *ACM Great Lakes Symposium on VLSI (GLSVLSI) Conference*, Chicago, IL, May 2018, pp. 63–68. (**Best Paper Award Candidate**)
- [C13] F. Gohring, **M. Nikdast**, Y. Xiong, F. Hessel, O. Liboiron-Ladouceur, and G. Nicolescu, “Silicon Photonic Interconnects: Minimizing the Controller Latency,” *ACM Great Lakes Symposium on VLSI (GLSVLSI) Conference*, Chicago, IL, May 2018, pp. 323–328. (**Invited**)
- [C14] **M. Nikdast**, G. Nicolescu, J. Trajkovic, and O. Liboiron-Ladouceur, “Enabling Efficient Tolerance Analysis in Silicon Photonic Integrated Circuits,” *IEEE Progress in Electromagnetic Research Symposium (PIERS)*, Shanghai, China, August 2016, pp. 783–783. (**Invited**)

- [C15] **M. Nikdast**, G. Nicolescu, J. Trajkovic, and O. Liboiron-Ladouceur, “An Analytical Study of Process Variations in Silicon Photonic Integrated Circuits,” *IEEE Photonics North (PN)*, Quebec City, Canada, May 2016, pp. 1–2. **(Invited)**
- [C16] **M. Nikdast**, G. Nicolescu, J. Trajkovic, and O. Liboiron-Ladouceur, “Modeling Fabrication Non-Uniformity in Chip-Scale Silicon Photonic Interconnects,” *IEEE/ACM Design, Automation and Test in Europe (DATE) Conference and Exhibition*, Dresden, Germany, March 2016, pp. 115–120. **(Best Paper Award, Test Track)**
- [C17] **M. Nikdast**, G. Nicolescu, J. Trajkovic, and O. Liboiron-Ladouceur, “Photonic Integrated Circuits: A Study on Process Variations,” *IEEE/OSA Optical Fiber Communications Conference and Exhibition (OFC)*, Anaheim, CA, March 2016, paper W2A.22.
- [C18] **M. Nikdast**, G. Nicolescu, J. Trajkovic, and O. Liboiron-ladouceur, “Silicon Photonic Integrated Circuits under Process Variations,” *IEEE/OSA Asia Communications and Photonics Conference*, Hong Kong, November 2015, paper ASu2A.12. **(Best Paper Award)**
- [C19] F. Gohring, R. Priti, **M. Nikdast**, F. Hessel, O. Liboiron-Ladouceur, and G. Nicolescu, “A Low-Latency Centralized Controller for MZI-Based Optical Integrated Networks,” *IEEE International Conference on Photonics in Switching (PS)*, Florence, Italy, September 2015, pp. 118–120.
- [C20] L. H. K. Duong, **M. Nikdast**, J. Xu, Z. Wang, Y. Thonnart, S. Le Beux, P. Yang, X. Wu, and Zh. Wang, “Coherent Crosstalk Noise Analyses in Ring-Based Optical Interconnects,” *IEEE/ACM Design, Automation and Test in Europe (DATE) Conference and Exhibition*, Grenoble, France, March 2015, pp. 501–506.
- [C21] **M. Nikdast**, L. H. K. Duong, J. Xu, S. Le Beux, X. Wu, Z. Wang, P. Yang, and Y. Ye, “CLAP: A Crosstalk and Loss Analysis Platform for Optical Interconnects,” *IEEE/ACM International Symposium on Networks-on-Chip (NoCS)*, Ferrara, Italy, September 2014, pp. 172–173.
- [C22] Y. Ye, X. Wu, J. Xu, **M. Nikdast**, Z. Wang, and X. Wang, “System-Level Analysis of Mesh-Based Hybrid Optical-Electronic Network-on-Chip,” *IEEE International Symposium on Circuits and Systems (ISCAS)*, Beijing, China, May 2013, pp. 321–324. **(Invited)**
- [C23] X. Wang, J. Xu, W. Zhang, X. Wu, Y. Ye, Z. Wang, **M. Nikdast**, and Zh. Wang, “Active Power-Gating-Induced Power/Ground Noise Alleviation Using Parasitic Capacitance of On-Chip Memories,” *IEEE/ACM Design, Automation and Test in Europe (DATE) Conference and Exhibition*, Grenoble, France, March 2013, pp. 1221–1224.
- [C24] W. Liu, Z. Wang, X. Wu, J. Xu, B. Li, W. Zhang, Y. Ye, Z. Wang, and **M. Nikdast**, “A Network-on-Chip Benchmark Suite Based on Real Applications,” *Workshop on SoCs, Heterogeneous Architectures and Workloads (SHAW) - In Conjunction with IEEE International Symposium on High-Performance Computer Architecture (HPCA)*, Shenzhen, China, February 2013. **(Invited)**
- [C25] Y. Ye, X. Wu, J. Xu, W. Zhang, **M. Nikdast**, and X. Wang, “Holistic Comparison of Optical Routers for Chip Multiprocessors,” *IEEE Anti-counterfeiting, Security, and Identification (ASIC)*, Taipei, Taiwan, November 2012, pp. 1–5.
- [C26] Y. Ye, J. Xu, X. Wu, W. Zhang, W. Liu, **M. Nikdast**, X. Wang, Z. Wang, and Zh. Wang, “Thermal Analysis for 3D Optical Network-on-Chip Based on a Novel Low-Cost 6×6 Optical Router,” *IEEE Optical Interconnects Conference (OI)*, Santa Fe, NM, May 2012, pp. 110–111.

- [C27] Z. Wang, J. Xu, X. Wu, Y. Ye, W. Zhang, W. Liu, **M. Nikdast**, X. Wang, and Zh. Wang, “A Novel Low-Waveguide-Crossing Floorplan for Fat Tree Based Optical Networks-on-Chip,” *IEEE Optical Interconnects Conference (OI)*, Santa Fe, NM, May 2012, pp. 100–101.
- [C28] Y. Ye, J. Xu, X. Wu, W. Zhang, X. Wang, **M. Nikdast**, Z. Wang, and W. Liu, “Modeling and Analysis of Thermal Effects in Optical Networks-on-Chip,” *IEEE Computer Society Annual Symposium on VLSI (ISVLSI)*, Chennai, India, July 2011, pp. 254–259.
- [C29] W. Liu, J. Xu, X. Wu, Y. Ye, X. Wang, W. Zhang, **M. Nikdast**, Z. Wang, “A NoC Traffic Suite Based on Real Applications,” *IEEE Computer Society Annual Symposium on VLSI (ISVLSI)*, Chennai, India, July 2011, pp. 66–71.
- [C30] W. Liu, J. Xu, X. Wang, Y. Wang, W. Zhang, Y. Ye, X. Wu, **M. Nikdast**, and Z. Wang, “A Hardware-Software Collaborated Method for Soft-Error Tolerant MPSoC,” *IEEE Computer Society Annual Symposium on VLSI (ISVLSI)*, Chennai, India, July 2011, pp. 260–265.
- [C31] Y. Xie, **M. Nikdast**, J. Xu, W. Zhang, Q. Li, X. Wu, Y. Ye, W. Liu, and X. Wang, “Crosstalk Noise and Bit Error Rate Analysis for Optical Network-on-Chip,” *IEEE/ACM Design Automation Conference (DAC)*, Anaheim, CA, June 2010, pp. 657–660.
- [C32] X. Wu, Y. Ye, W. Zhang, W. Liu, **M. Nikdast**, X. Wang, and J. Xu, “UNION: A Unified Inter/Intra-Chip Optical Network for Chip Multiprocessors,” *IEEE/ACM International Symposium on Nanoscale Architectures (NanoArch)*, Anaheim, CA, July 2010, pp. 35–40. **(Invited)**
- [C33] H. Ahmadi and **M. Nikdast**, “Age-Based Adaptive Routing Algorithm for Network-on-Chip,” *Iranian Student Conference in Electrical Engineering (ISCEE)*, Tabriz, Iran, May 2009.
- [C34] M. Davarpanah, A. Mohamad Shafiee, **M. Nikdast**, and M. Montazeri, “A Predetermined Routing Algorithm for Network-on-Chip,” *Iranian Conference on Electrical Engineering (ICEE)*, Tehran, Iran, May 2009.
- [C35] A. M. Shafiee, **M. Nikdast**, and M. Montazeri, “Parameterized Intermittent Routing Algorithm in Networks-on-Chip,” *IEEE International Conference on Emerging Trends in Computing (ICETiC)*, India, 2009.
- [C36] B. Soleimani, E. Shahabian, M. Yavari, and **M. Nikdast**, “A Novel Heuristic for Solving the 8 Puzzle Problem Based on IDA Method,” *Iranian Student Conference in Electrical Engineering (ISCEE)*, Zanjan, Iran, 2008.

2.11 Guest Editorials

- [GE1] E. Fusella, **M. Nikdast**, I. O’Connor, J. Flich, S. Pasricha, “Guest Editor’s Introduction: Special Issue on Emerging Networks-on-Chip: Designs, Technologies, and Applications,” *ACM Journal on Emerging Technologies in Computing Systems (JETC)*, vol. 15, no. 1, article 1, February 2019.

2.12 Other Publications

- [A1] **M. Nikdast**, “Research Papers: Writing Tips and Top-Tier Targets,” *IEEE Potentials*, vol. 36, no. 3, pp. 26–29, May–June 2017.
- [A2] **M. Nikdast**, “Research Tips for First-Year Ph.D. Students,” *IEEE Potentials*, vol. 35, no. 3, pp. 18–20, May–June 2016.

- [A3] S. Sinha and **M. Nikdast**, “Finding Happiness and Satisfaction During Your Ph.D. Program,” *IEEE Potentials*, vol. 34, no. 3, pp. 36–38, May–June 2015.

2.13 Refereed Conference Poster Presentations

- [P1] S. Manafi Avari, R. G. Kim, and **M. Nikdast**, “Adaptive Resource Management in Photonically Interconnected Disaggregated Datacenters,” *International Conference on Green and Sustainable Computing (IGSC)*, Alexandria, VA, October 2019.
- [P2] M. Pakhale, Y. Chopra, N. Daley, and **M. Nikdast**, “Eye of Horus (EoH): An Automated Real-Time Surveillance System to Protect Citizens,” *Colorado State University Demo Day Forum*, Fort Collins, CO, April 2019. (**Best Poster People’s Choice Award**)
- [P3] **M. Nikdast**, G. Nicolescu, and O. Liboiron-Ladouceur, “Fault-Tolerant Optical NoCs: An Approach Based on Microresonators Design Space Exploration,” *IEEE/ACM Design Automation Conference (DAC)*, San Francisco, CA, June 2018. (Late Breaking Results Session)
- [P4] **M. Nikdast**, G. Nicolescu, J. Trajkovic, and O. Liboiron-Ladouceur, “Photonic Integrated Circuits: A Study on Process Variations,” *IEEE/OSA Montreal Networking Event and Poster Competition*, Montreal, Canada, March 2017.
- [P5] **M. Nikdast**, “Silicon Photonic Interconnects: Design Opportunities and Challenges,” *University of Concordia Postdoctoral Research Day*, Montreal, Canada, November 2015.
- [P6] **M. Nikdast**, “Optical Interconnects for Computing Systems: A Formal Study on Signal-to-Noise Ratio,” *IEEE/ACM Design, Automation and Test in Europe (DATE) Conference and Exhibition*, Grenoble, France, March 2015. (Ph.D. Forum)
- [P7] **M. Nikdast** and J. Xu, “On the Impact of Crosstalk Noise in Optical Networks-on-Chip,” *IEEE/ACM Design Automation Conference (DAC)*, San Francisco, CA, June 2014. (Ph.D. Forum)
- [P8] Z. Wang, J. Xu, X. Wu, X. Wang, Zh. Wang, **M. Nikdast**, P. Yang, “Holistic Modeling and Comparison of Inter-Chip Optical and Electrical Interconnects,” *IEEE/ACM Design Automation Conference (DAC)*, San Francisco, CA, June 2014. (Work in Progress Session)
- [P9] W. Liu, J. Xu, X. Wu, Y. Ye, X. W., W. Zhang, **M. Nikdast**, and Z. Wang, “MCSL: A Realistic Traffic Benchmark Suite for Network-on-Chip Studies,” *IEEE/ACM Design Automation Conference (DAC)*, San Francisco, CA, June 2011. (Work in Progress Session)
- [P10] W. Liu, J. Xu, X. Wang, Y. Wang, W. Zhang, Y. Ye, X. Wu, *M. Nikdast*, and Z. Wang, “A Low-Overhead Hardware-Software Collaborated Approach for Soft-Error Tolerance,” *IEEE/ACM Design Automation Conference (DAC)*, San Diego, CA, June 2011. (Work in Progress Session)
- [P11] **M. Nikdast**, J. Xu, X. Wu, Y. Ye, W. Liu, and X. Wang, “A Formal Analysis of Crosstalk Noise in Mesh-Based Optical Networks-on-Chip for Chip Multiprocessors,” *AMD Technical Forum and Exhibition (AMD-TFE)*, Taipei, Taiwan, October 2010. (**Best Project Award, Second place**)
- [P12] W. Liu, X. Wang, J. Xu, X. Wu, Y. Ye, and **M. Nikdast**, “A Case Study of On-Chip Sensor Networks for Soft-Error Tolerant Multiprocessor Systems-on-Chip,” *AMD Technical Forum and Exhibition (AMD-TFE)*, Taipei, Taiwan, October 2010.
- [P13] **M. Nikdast** and M. Montazeri, “Analysis of Different Routing Algorithms in NoCs,” *Iranian Student Conference in Electrical Engineering (ISCEE)*, Zanjan, Iran, May 2008.

2.14 Thesis

- [T1] **M. Nikdast**, “Signal-to-Noise Ratio in Optical Interconnection Networks: Analysis, Modeling, and Comparison,” Ph.D. Dissertation, *The Hong Kong University of Science and Technology (HKUST)*, Hong Kong, December 2013.

2.15 Invited Talks

- [IT1] School of Engineering, The Hong Kong University of Science and Technology, March 2021: *Pathways to Academia*.
- [IT2] IEEE-Eta Kappa Nu (HKN) Premier Educational and Networking Event (Virtual Event), November 2020: *Pathways to Academia Panel*.
- [IT3] Silicon Photonic Special Day at IEEE/ACM Design, Automation, and Test in Europe (DATE) Conference and Exhibition, Grenoble, France, March 2020: *Opportunities for Cross-Layer Design in High-Performance Computing Systems with Integrated Silicon Photonic Networks*.
- [IT4] Computer Science Department, Colorado State University, Fort Collins, CO, November 2018: *Computing Systems Integrating Silicon Photonics: An Illusion or a Realistic Solution?*
- [IT5] Workshop on Energy-efficient Networks of Computers: From the Chip to the Cloud at the IEEE International Conference on Green and Sustainable Computing (IGSC), Pittsburgh, PA, October 2018: *Silicon Photonics for High Performance Computing: Opportunities and Challenges!*
- [IT6] Ingram School of Engineering, Texas State University, San Marcos, TX, April 2017: *Multiprocessor Computing Systems Integrating Silicon Photonics Interconnects*.
- [IT7] Computer and Software Engineering Department, Polytechnique Montreal, QC, Canada, March 2017: *Computing Systems Integrating Silicon Photonics: An Illusion or a Realistic Solution?*
- [IT8] Electrical and Computer Engineering Department, Colorado State University, Fort Collins, CO, February 2017: *Multiprocessor Computing Systems Integrating Silicon Photonics Interconnects*.
- [IT9] Electrical and Computer Engineering Department, University of Toronto, ON, Canada, November 2016: *Silicon Photonic Interconnection Networks for Multiprocessor Computing Systems: Let’s Meet in the Middle!*
- [IT10] IEEE Progress in Electromagnetics Research Symposium (PIERS) - Special Session on Nanophotonics and Integration, Shanghai, China, August 2016: *Enabling Tolerance Analysis in Silicon Photonics Integrated Circuits*.
- [IT11] IEEE Photonics North Conference, Quebec City, Canada, May 2016: *An Analytical Study of Process Variations in Silicon Photonics Integrated Circuits*.
- [IT12] Computer and Software Engineering Department, Polytechnique Montreal, QC, Canada, April 2016: *Silicon Photonic Interconnect For Computing Systems: Opportunities and Challenges!*
- [IT13] Optical/Photonic Interconnects for Computing Systems (OPTICS) Workshop at the IEEE/ACM Design, Automation, and Test in Europe (DATE) Conference and Exhibition, Dresden, Germany, March 2016: *Fabrication Non-Uniformity in Silicon Photonics Interconnects*.

- [IT14] Special Session on Silicon Photonics Interconnects at the IEEE/ACM International Symposium on Networks-on-Chip (NoCs), Ferrara, Italy, September 2014: *CLAP: A Crosstalk and Loss Analysis Platform for Optical Interconnects*.
- [IT15] Networks-on-Chip Workshop at the Hong Kong University of Science and Technology, Hong Kong, October 2012: *Formal Worst-case Analysis of Crosstalk Noise in Mesh-based Optical Networks-on-Chip*.
- [IT16] AMD Technical Forum and Exhibition, Taipei, Taiwan, October 2010: *A Formal Analysis of Crosstalk Noise in Mesh-Based Optical Networks-on-Chip for Chip Multiprocessors*.
- [IT17] School of Electrical and Computer Engineering, University of Tehran, Tehran, Iran, July 2010: *Bit Error Rate Analysis in Optical Networks-on-Chip*.

3 Educational Activities

3.1 Current Ph.D. Students (Advisor)

Swarada Kulkarni	Ph.D. (SP2021 –), Jointly supervised with E. Chong Journal papers: In progress. Conference proceedings and presentations: In progress. Thesis: In progress.
Amin Shafiee	Ph.D. (SP2021 –), Jointly supervised with S. Pasricha Journal papers: In progress. Conference proceedings and presentations: In progress. Thesis: In progress.
Ebadollah Taheri	Ph.D. (FA2019 –) Journal papers: [J1]. Conference proceedings and presentations: [C2], [C8]. Thesis: In progress.
Asif Mirza	Ph.D. (SP2018 –), Jointly supervised with S. Pasircha Journal papers: [J1], [J4]. Conference proceedings and presentations: [C3], [C5], [C6], [C7], [C8]. Thesis: In progress.
Febin Sunny	Ph.D. (SP2018 –), Jointly supervised with S. Pasricha Journal papers: [J1], [J2], [J3], [J4]. Conference proceedings and presentations: [C3], [C6], [C7], [C8]. Thesis: In progress.

3.2 Current Ph.D. Students Co-Advise Outside CSU

Sanmitra Banerjee	Ph.D. (SP2020 –), Jointly supervised with K. Chakrabarty at Duke University Journal papers: In progress. Conference proceedings and presentations: [C1], [C4]. Thesis: In progress.
Asha Jakhar	Ph.D. (FA2020 –), Jointly supervised with S. Roy at IIT Roorkee, India Journal papers: In progress. Conference proceedings and presentations: In progress. Thesis: In progress.

3.3 Current M.Sc. Students (Advisor)

Yicheng Liu	M.Sc. (SP2021 –) Final Project: <i>Bias Control and Mitigation in Silicon Photonic Integrated Circuits</i>
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Siddhi Sawant	M.Sc. (FA2019 –) Final Project: <i>Fabrication-Process Variations in Silicon Photonic Integrated Circuits</i>
Lekha Rane	M.Sc. (FA2019 –) Final Project: <i>Automated and In Package Testing of Silicon Photonic Integrated Circuits</i>
Yash Chopra	M.Sc. (SP2018 –) Final Project: <i>Real-Time Surveillance with Machine Learning Techniques</i>

3.4 Current Undergraduate Students

Ryan Gloekler	B.Sc. (SP2021 –) Project: <i>Silicon Photonic Circuit-Layout Design Automation</i>
Nicole Kindred	B.Sc. (FA2020 –) Project: <i>Applications of Silicon Photonics for Space Communication</i>
Peter Walsh	B.Sc. (FA2019 –) Project: <i>Fabrication-Process Variation Analysis Tool for Silicon Photonic Integrated Circuits</i>
Bronson Wong	B.Sc. (FA2019 –) Project: <i>Real-Time Surveillance with Machine Learning Techniques</i>

3.5 Ph.D. Thesis Committee Member (Graduated)

Dr. Meisam Bahadori	Ph.D., Columbia University (June 2018) External Committee Member Journal papers: [J6], [J7]. Thesis: <i>Physical Layer Modeling and Optimization of Silicon Photonics Interconnection Networks</i>
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3.6 M.Sc. Thesis Students Graduated (Advisor)

Sakshi Bhatnagar	M.Sc. (FA2017–SP2019), Jointly supervised with S. Roy Conference proceedings and presentations: [C10]. Thesis: <i>Performance Assessment of Multi-Walled Carbon Nano-Tube Interconnects Using Advanced Polynomial Chaos Scheme</i>
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3.7 M.Sc. Project Students Graduated (Advisor)

Shruti Parab	M.Sc. (FA2019–SP2020) Final Project: <i>Silicon Photonic Neural Networks</i>
Aniruddha Vyawahare	M.Sc. (SP2018–SP2020) Final Project: <i>Electronic-Photonic Co-Simulation and Co-Design</i>

Mihir Pakhale M.Sc. (SP2018–SUM2019)
 Project: *Developing an Automated Surveillance System Using Machine Learning Solutions for Secured Environments*

3.8 Undergraduate Senior Design Projects Supervised

FA2019–SP2020 Aly Ammar, Gi Heyon Hong, and Seungryong Lyu
 Final Project: *Eye of Horus (EoH): An Automated Real-Time Surveillance System to Protect Citizens*

3.9 Undergraduate Research Students Supervised

Calvin Tai B.Sc. (FA2019–SP2020)
 Project: *Real-Time Surveillance with Machine Learning Techniques*

Anderson Worcester Independent Undergraduate Research Program (SP2020)
 Project: *In-Package Calibration of Silicon Photonic Integrated Circuits*

Zach Burpoe CSU Scott Undergraduate Research Experience (SURE) Program (SP2020)
 Project: *Automated Testing Probe for Silicon Photonic Integrated Circuits*

Chris Feug CSU Scott Undergraduate Research Experience (SURE) Program (SP2020)
 Project: *An Automated Real-Time Surveillance System Employing Machine Learning Techniques and Drones*

Nick Daly CSU Scott Undergraduate Research Experience (SURE) Program (SP2019)
 Project: *An Automated Real-Time Surveillance System Employing Machine Learning Techniques and Drones*

3.10 K–12 Student Projects Supervised

Noah Mulvaney High School Senior Student Capstone Project (FA2018–SP2019)
 Project: *Remote Sensing for Automated Surveillance Systems*

3.11 Student Awards

Ebad Taheri *NSF-Funded Student Participation Award, IEEE International Green and Sustainable Computing (IGSC) Conference, Virtual, 2020*

Ebad Taheri *A. Richard Newton Young Student Fellowship, IEEE/ACM Design Automation Conference, Virtual, 2020*

Shadi Manafi *ACM SIGDA Diversity Advancement Travel Award, IEEE/ACM International Conference on Computer Aided Design (ICCAD), Westminster, CO 2019*

Shadi Manafi *NSF-Funded Travel Award, IEEE International Green and Sustainable Computing (IGSC) Conference, Alexandria, VA 2019*

Ebad Taheri *Travel Award, IEEE/ACM International Symposium on Networks-on-Chip (NOCS), New York, NY 2019*

Mihir Pakhale *Best Poster People's Choice Award, Colorado State University Demo Day, Fort Collins, Co 2019*

Asif Mirza *A. Richard Newton Young Student Fellowship, IEEE/ACM Design Automation Conference, Las Vegas, NV 2019*

Febin Sunny *A. Richard Newton Young Student Fellowship, IEEE/ACM Design Automation Conference, Las Vegas, NV 2019*

Shadi Manafi *A. Richard Newton Young Student Fellowship, IEEE/ACM Design Automation Conference, Las Vegas, NV 2019*

3.12 Teaching Experience at CSU

ECE 102 *Digital Circuit Logic, Spring 2021*

ECE 544 *Silicon Photonics for Computing Systems, Spring 2021*

ECE 450/451 *Digital System Design, Fall 2020*

ECE 480A4 *Digital Logic Synthesis, Spring 2020*

ECE 102 *Digital Circuit Logic, Spring 2020*

ECE 580B6 *Silicon Photonics for Computing Systems, Fall 2019*

ECE 102 *Digital Circuit Logic, Spring 2019*

ECE 580B6 *Silicon Photonics for Computing Systems, Fall 2018*

ECE 102 *Digital Circuit Logic, Spring 2018*

ECE 450/451 *Digital System Design, Fall 2017*

3.13 New Courses Developed at CSU

ECE 480A4 *Digital Logic Synthesis*

ECE 544 *Silicon Photonics in Computing Systems*

3.14 Professional Development (Participated)

Inclusive Pedagogy, *Colorado State University, Fort Collins, CO, Spring 2021*

Grant Writing Workshop, *Colorado State University, Fort Collins, CO, Spring 2019*

DAC Young Faculty Workshop, *IEEE/ACM Design Automation Conference (DAC), San Francisco, CA, Summer 2018*

DAC Young Faculty Workshop, *IEEE/ACM Design Automation Conference (DAC), Austin, TX, Summer 2016*

Clarifying Expectations for Supervision, *McGill University*, Montreal, Canada, Winter 2016

Crafting Your Research Future, *Center for Enhanced Learning and Teaching*, HKUST, Hong Kong, Spring 2013

Prepare for Your Academic Career, *Center for Enhanced Learning and Teaching*, HKUST, Hong Kong, Spring 2013

Modern Engineering Research Methodology, *Hong Kong University of Science and Technology*, Hong Kong, Spring 2012

Effective Research Process, *Hong Kong University of Science and Technology*, Hong Kong, Spring 2011

4 Professional Activities

4.1 Editorial Activities

2021–present

Associate Editor, IEEE Transactions on VLSI Systems (TVLSI).

2020–2021

Guest Editor, MDPI Journal of Micromachines, Special issue on “Network-on-Chip Again on the Rise: From Emerging Applications to Emerging Technologies.”

2018–2019

Guest Editor, Elsevier Journal on Sustainable Computing (SUSCOM).

2017–2018

Guest Editor, ACM Journal on Emerging Technologies in Computing (JETC), Special Issue on “Emerging Networks-on-Chip: Designs, Technologies, and Applications.”

4.2 Conference/Workshop Steering Committee

2018–present

North American Workshop on Silicon Photonics for High Performance Computing (SPHPC).

2015–present

International Workshop on Optical/Photonic Interconnects for Computing Systems (OPTICS).

4.3 Conference/Workshop General Chair

2018–present

International Workshop on Optical/Photonic Interconnects for Computing Systems (OPTICS).

2018–present

North American Workshop on Silicon Photonics for High Performance Computing (SPHPC).

4.4 Conference/Workshop Technical Program Committee Chair

2015–2017

International Workshop on Optical/Photonic Interconnects for Computing Systems (OPTICS).

4.5 Conference/Workshop Organizing Committee

2021

Publication Chair - IEEE/ACM International Symposium on Networks-on-Chip (NOCS).

2019

Special Session Chair - ACM Great Lakes Symposium on VLSI (GLSVLSI) Conference.

2018–present

Student Travel Grant Chair - IEEE International Green and Sustainable Computing Conference (IGSC).

2018

Publicity Chair - International Workshop on Network-on-Chip Architectures (NoCArc).

2018

Publication Chair - IEEE Computer Society Annual Symposium on VLSI (ISVLSI).

2017–present

Ph.D. Forum Chair - IEEE International Green and Sustainable Computing Conference (IGSC).

4.6 Technical Program Committee (TPC) Track Chair

2020

IEEE/ACM Design Automation Conference (DAC) for the Track EDA1—System-on-Chip Design Methodology.

4.7 Technical Program Committee (TPC) Member

2020

IEEE International Conference on Hardware/Software Codesign and System Synthesis (CODES+ISSS).

2020–present

IEEE International Symposium on Quality Electronic Design (ISQED).

2020–present

IEEE Workshop on Heterogeneity in Computing (HCW).

2019–present

IEEE/ACM Design Automation Conference (DAC).

2018–present

ACM Great Lakes Symposium on VLSI (GLSVLSI).

2019

IEEE Workshop on Photonics-Optics Technology Oriented Networking, Information and Computing Systems (PHOTONICS).

2019

IEEE/ACM International Symposium on Networks-on-Chip (NOCS).

2019

IEEE International System-on-Chip Conference (SOCC).

2019

IEEE/ACM International Conference on Hardware/Software Codesign and System Synthesis (CODES+ISSS).

2018

International Workshop on Network-on-Chip Architectures (NoCArc).

2018

IEEE Computer Society Annual Symposium on VLSI (ISVLSI).

2018

ACM SIGDA Ph.D. Forum - Design Automation Conference (DAC).

2018

IEEE International Conference on High Performance Computing and Communications (HPCC).

2018

International Workshop on Advanced Interconnect Solutions and Technologies for Emerging Computing Systems (AISTECS).

2017–present

IEEE International Green and Sustainable Computing Conference (IGSC).

4.8 Conference/Workshop Technical Session Chair

2021

IEEE/ACM Design, Automation and Test in Europe (DATE) Conference and Exhibition: *Technical Session 2.2: 3D integration: Today's Practice and Road Ahead*

2020

IEEE/ACM International Conference On Computer Aided Design (ICCAD): *Technical Session 2C: Safety and Energy Optimizations for Cyber-Physical Systems*

2018

North American Workshop on Silicon Photonics for Computing Systems (SPHPC): *Technical Session IV: System-Level Architectures and Packaging*

2018

IEEE/ACM Design Automation Conference (DAC): *Technical Session 36: Emerging Storage and Memory Technologies*

2018

ACM Great Lakes Symposium on VLSI (GLSVLSI): *Technical Session 1: Emerging Computing, and Post-CMOS Technologies*

2018

IEEE International Green and Sustainable Computing Conference (IGSC): *Session 9B: Smart Buildings*

2017

International Workshop on Optical/Photonics Interconnects for Computing Systems (OPTICS): *Technical Session 2: Applications of Silicon Photonics*

2017

IEEE International Green and Sustainable Computing Conference (IGSC)

4.9 Special Session Organizer

2020

Special Session on “Edge-to-Cloud Neural Networks for Machine Learning Applications in Future IoT Systems” at *IEEE/ACM Design Automation Conference (DAC)*, San Francisco, CA (co-organizers: R. Kim and G. Nicolescu).

2019

Special Session on “Breaking the Ice Between Photonics Design and EDA: Electronic-Photonics Design Automation (EPDA)” at *IEEE/ACM International Conference on Computer Aided Design (ICCAD)*, Westminster, CO (co-organizer: U. Schlichtmann).

2018

Special Session on “Emergence of Silicon Photonics in High-Performance Computing: How can the VLSI Community Contribute?” at *ACM Great Lakes Symposium on VLSI (GLSVLSI) Conference*, Chicago, IL.

4.10 Referee/Reviewer Activities

Funding Agencies:

European Research Foundation - Flanders (FWO), 2020.

National Science Foundation (NSF), Division of Computer and Network Systems (CNS), 2020.

Natural Sciences and Engineering Research Council (NSERC), Canada, 2019.

Ph.D. Thesis:

Polarization Multiplexed Carrier based Self-Homodyne Coherent Optical Links. Dr. Rashmi Kamran, IIT Bombay, 2019.

Books:

Cambridge University Press

Journals:

IEEE/ACM Transactions on Networking

IEEE Transactions on Communication

IEEE Photonics Technology Letters (PLT)

IEEE Journal on Lightwave Technology (JLT)

IEEE Transactions on Very Large Scale Integration (TVLSI)

IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)

IEEE Design and Test of Computers (D&T)

IEEE Transactions on Parallel and Distributed Systems (TPDS)

IEEE Transactions on Emerging Topics in Computing (TETC)

IEEE Transactions on Multi-Scale Computing Systems (TMSCS)

IEEE Transactions on Computers (TC)

IEEE Computer Architecture Letters (CAL)

ACM Transactions on Embedded Computing Systems (TECS)

ACM Journal on Emerging Technologies in Computing (JETC)

Elsevier Journal on Sustainable Computing (SUSCOM)

Elsevier Journal of Systems Architecture (JSA)

Elsevier Journal on Microprocessors and Microsystems (MICPRO)

Elsevier International Journal for Light and Electron Optics (OPTIK)

Elsevier Journal on Integration, the VLSI Journal (VLSI)

Elsevier Journal on Computer Physics Communications (CPC)

Elsevier Journal on Nano Communication Networks (NanoComNet)

Conferences:

IEEE/ACM Design Automation Conference (DAC)

IEEE/ACM Design Automation and Test in Europe (DATE) Conference and Exhibition

Asia and South Pacific Design Automation Conference (ASP-DAC)
Embedded Systems Week (ESWEEK, CODES+ISSS, and CASES)
IEEE International Conference on Computer Aided Design (ICCAD)
IEEE Computer Society Annual Symposium on VLSI (ISVLSI)
International Symposium on Networks-on-Chip (NOCS)
IFIP/IEEE International Conference on Very Large Scale Integration (VLSI-SOC)

4.11 University, College, and Department Service

Committee: Diversity, Equity, and Inclusion (DEI) Committee, ECE Department, CSU
Activity: Co-Chair, 2019 – present.

Committee: Individual Development Plan and Mentoring, College of Engineering, CSU
Activity: Member, 2019 – present.

Committee: Engineering Student Technology Committee (ESTC), College of Engineering, CSU
Activity: Member, 2017 – 2019.